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Abstract. Data are presented on the discovery of a large number of undisturbed colonies of mound building ants and the ecological conditions of their development.

The discovery of the eastern mound-building ant in Hamilton County was unexpected. It was also amazing to see the extent of development and the number of mounds. Iowa records (Buren, 1944) indicate identification of this species, *Formica exsectoides,* Forel, at Inwood, Denison and Mount Vernon. These reports were all made from single, small and apparently struggling colonies.

Formica exsectoides, more commonly called the eastern or Alleghery mound builder, forms an aggregate of colonies consisting of numerous mounds in open forest clearings. The average mound constructed by these ants is about two feet high and up to six feet across. The ants work the ground to a depth of more than five feet.

The complex of ant mounds studied for this report is located about 7½ miles south and 1½ miles west of Webster City, Iowa. They are found grouped in the clearings of a dense oak-hickory

Figure 1. Aggregate of ant mounds in an open forest clearing.

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forest on the upland plains overlooking the Boone River. It must be noted here that this area is on Litchfield property and that permission was obtained before this study was begun. The legal location of the area is the center of section 15, T-87-N, R-26-W, Webster Township, Hamilton County, Iowa.

A number of the ants were collected and tentatively identified. Later some were sent to the University of Nevada to verify the specific epithet. The next part of the study involved the mapping and measuring of the mounds.

What appeared to be a "typical" clearing was designated "A", and the mounds present were numbered in order from the largest to the smallest in height. Diameter and circumference were recorded along with the general appearance of the mound. Where the mound was oblong, in place of round, both long and short axes were measured.

Table I. Measurements and Condition of the Ant Mounds as Observed in Clearing A. November 1969.

Mound Number	Height	Diameter	Circumference	Remarks
A-1	68 cm	403 cm (287 cm)	1072 cm	largest
A-2	47.3 cm	223.2 cm (153 cm)	550 cm	enlarging
A-3	42.6 cm	197.6 cm	577 cm	rapid development
A-4	38.1 cm	126.2 cm	467 cm	most active mound
A-5	37.1 cm	204.3 cm	540 cm	becoming inactive
A-6	27.4 cm	132.5 cm	472 cm	dead, inactive
A-7	25.4 cm	97.1 cm	311 cm	
A-8	23.0	128.2 cm	447 cm	damaged by horses—still active
A-9	21.3 cm	123.2 cm	434 cm	
A-10	12.0 cm	43.4 cm	171 cm	started spring '69

A second clearing was designated "B", and the whole operation was repeated. Because of the large number of mounds present, several hundred, the mapping, measuring and describing of all of the mounds is still incomplete at this time.

Results, at this early date, are inconclusive but some observations can be reported. Active mounds are located only where there is a clear unobstructed view of the sky directly overhead. If a tree branch or other obstruction moves in such a way as to cover the top of the mound at any height, activity slows and the mound degenerates rapidly. Should the obstruction remain for a long

period of time (several months), the colony dies out or migrates. Evidence as to which happens is insufficient to permit a positive statement, but, at any rate, the mound becomes inactive.

Another cause for the degeneration of a colony is disturbance of the mound. At this time cattle, horses, and motorcycles running over the mounds cause the greatest damage. When this happens and damage results, at first there is great activity and then the whole colony appears to enter a state of shock and all activity stops. If enough damage is done the colony does not make a comeback and mound development ceases.

The formation of a new clearing, resulting from trees falling down for one reason or another, is followed by a great deal of ant activity. Colonies move into the area and mound building progresses at a rapid rate. This observation was made after a wind storm blew over trees in the early spring of 1969. The following summer produced much activity in these areas.

We, The authors now realize that this study will require many years to complete. It is hoped that conditions will remain such that the ant hills can be protected from man's "progress". To our knowledge, this is the only large complex of several hundred colonies of *Formica exsectoides* Forel reported in Iowa.

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